

Archives of Biochemistry and Biophysics

VOLUME 196

1979

Academic Press  New York and London

A Subsidiary of Harcourt Brace Jovanovich, Publishers

Copyright © 1979 by Academic Press, Inc.
All Rights Reserved

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

The appearance of the code at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc. (Operations Staff, P. O. Box 765, Schenectady, New York 12301), for copying beyond that permitted by Sections 107 or 108 of the U. S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Copy fees for pre-1970 articles are the same as those shown for current articles.

MADE IN THE UNITED STATES OF AMERICA

CONTENTS OF VOLUME 196

NUMBER 1, AUGUST 1979

COMMUNICATIONS

- Induction by Manganese, Ethanol, Phenobarbital, and Herbicides of Microsomal Cytochrome *P*-450 in Higher Plant Tissues
Danièle Reichhart, Jean-Pierre Salaün, Irène Benveniste, and Francis Durst 301
- Interaction between γ -Carboxyglutamic Acid and Glutamate Dehydrogenase
G. Federici, G. Ricci, R. M. Matarese, G. Spoto, S. Dupré, and D. Cavallini 304
- Caffeine Inhibits the Binding of Dimethylbenz(*a*)anthracene to Murine Epidermal Cells DNA in Culture
M. Shoyab 307

BIOLOGICAL OXIDATION AND BIOENERGETICS

- Effects of Free ATP, Citrate, and Bicarbonate on Rat Liver Mitochondrial ATPase
Esteban Santiago, Ana J. Iriarte, María J. López-Zabalza, and Natalia López-Moratalla 1
- Induction of Hepatic Heme Oxygenase Activity by Bromobenzene
Philip S. Guzelian and Nabil A. Elshourbagy 178

BIOCHEMICAL GENETICS AND CELLULAR DIFFERENTIATION AND DEVELOPMENT

- Glucosphingolipid Synthesis in the Cellular Slime Mold *Dictyostelium discoideum*
Edmund V. Crean and Edward F. Rossomando 186

ENZYME MECHANISMS AND METABOLISM

- Purification of Formaldehyde and Formate Dehydrogenases from Pea Seeds by Affinity Chromatography and S-Formylglutathione as the Intermediate of Formaldehyde Metabolism
Lasse Uotila and Martti Koivusalo 33
- Kinetic Changes following Modification of Rat Liver Alcohol Dehydrogenase by Deoxycholate
Giorgio M. Hanozet, Mirella Simonetta, Daniela Barisio, and Andrea Guerriore 46
- Kinetic Analysis of the Effect of Zinc Ion on the Inorganic Pyrophosphatase Reaction
Owen A. Moe, Jr., Si Pham, Tuan Dang, and Lamar Styer 73
- Galactosylceramide β -Galactosidase in Krabbe Disease: Partial Purification and Characterization of the Mutant Enzyme
Yoav Ben-Yoseph, Melinda Hungerford, and Henry L. Nadler 93
- Plant Adenosine Kinase: Purification and Some Properties of the Enzyme from *Lupinus luteus* Seeds
Andrzej Guranowski 220
- Purification of Lipoamide Dehydrogenase from *Ascaris* Muscle Mitochondria and Its Relationship to NADH:NAD⁺ Transhydrogenase Activity
Richard Komuniecki and Howard J. Saz 239

LIPIDS

- Specificity and Site of Action of a Mammary Gland Thioesterase Which Releases Acyl Moieties from Thioester Linkage to the Fatty Acid Synthetase
Stuart Smith and Louis J. Libertini 88
- Possible Involvement of Acyltransferase Systems in the Formation of Pulmonary Surfactant Lipid in Rat
Kazuyo Yamada and Harumi Okuyama 209
- The Effects of Cyclic Nucleotides and Some Related Agents on ³²P_i Labeling of Renal Polyphosphoinositides *in Vitro*
William H. Baricos, M. Wayne Hurst, and Clyde G. Huggins 227

- Effects of Dietary Fatty Acids on Hepatic 3-Hydroxy-3-methylglutaryl CoA Reductase Activity in Hamsters on a High-Glucose Diet
Yasuteru Iijima, Mitsuo Yamazaki, and Motohiro Maruyama 265

MEMBRANE STRUCTURE AND FUNCTION

- Changes in Ram Sperm Membranes during Epididymal Transit
Roy H. Hammerstedt, Alec D. Keith, Sandra Hay, Neil DeLuca, and Rupert P. Amann 7
- The Influence of Vitamin E and Selenium on the Growth and Plasma Membrane Permeability of Mouse Fibroblasts in Culture
A. S. M. Giasuddin and A.T Diplock 270

BIOCHEMISTRY OF VIRUSES AND NUCLEIC ACIDS

- Interaction of Human DNA Polymerase β with Ions of Copper, Lead, and Cadmium
Edwin A. Popenoe and Max A. Schmaeler 109

PHOTOSYNTHESIS AND PLANT BIOCHEMISTRY

- Partial Purification and Properties of an Endonuclease from Germinating Pea Seeds Specific for Single-Stranded DNA
Altaf A. Wani and S. M. Hadi 138

PHYSICAL BIOCHEMISTRY AND PHYSICAL CHEMISTRY OF MACROMOLECULES

- Potentiometric Titration Behavior of Polylysine and Copolymer of Lysine with Alanine Prepared by Thermal Polycondensation
Etsuo Kokufuta, Takaichi Terada, Minoru Tamura, Shinnichiro Suzuki, and Kaoru Harada 23
- Kinetics of Organomercurial Reactions with Model Thiols: Sensitivity to Exchange of the Mercurial Labile Ligand
Gautam Sanyal and Raja G. Khalifah 157
- Hydrodynamics and Protein Hydration
Phil G. Squire and Michael E. Himmel 165
- Spectroscopic Studies on the Urea Denaturation of Hemocyanin from the Australian Freshwater Crayfish *Cherax destructor*
David I. Marlborough 248
- Oxygen Diffusion in Phospholipid Artificial Membranes Studied by Fourier Transform Nuclear Magnetic Resonance
George G. McDonald, Jane M. Vanderkooi, and John Carl Oberholtzer 281

POLYSACCHARIDES AND COMPLEX CARBOHYDRATES

- Subsite Mapping of Enzymes. Use of Subsite Map to Simulate Complete Time Course of Hydrolysis of a Polymeric Substrate
Earl M. Torgerson, Lorraine C. Brewer, and John A. Thoma 13
- Production of Cartilage-typic Proteoglycans in Cultures of Chondrocytes from Elastic Cartilage
Kjell Madsen and Stefan Lohmander 192

PROTEIN STRUCTURE AND FUNCTION

- Hemoglobin α -Chain Variation in Macaques: Primary Structures of the α^I and α^{II} Chains from the Adult Hemoglobins of Malaysian *Macaca nemestrina*
Walter C. Mahoney and Peter E. Nute 64
- Selective Reduction of Seminal Ribonuclease by Glutathione
Gary K. Smith and Stephen W. Schaffer 102
- Affinity Chromatography of *Bacillus subtilis* Glutamine Phosphoribosylpyrophosphate Amidotransferase
Joseph Y. Wong and Robert L. Switzer 134
- Modulation of the Substrate Binding Sites of Platelet Myosin by Actin
Mazhar N. Malik 147

Inactivation of Phosphofructokinase by Dialdehyde-ATP	Martha R. Gregory and E. T. Kaiser	199
Involvement of Histidine Residues in the Substrate Binding of Elongation Factor Tu from <i>Thermus thermophilus</i> : Proton Nuclear Magnetic Resonance and Photo-oxidation Study	Akihiko Nakano, Tatsuo Miyazawa, Shun Nakamura, and Yoshito Kaziro	233
Direct Evidence for the Presence of β -Hydroxyphenylalanine and β -Hydroxy-tyrosine in Cutinase from <i>Fusarium solani pisi</i>	T. S. Lin and P. E. Kolattukudy	255

REGULATION OF METABOLISM AND OF ENZYME ACTION

The Stimulus-Secretion Coupling of Glucose-Induced Insulin Release: Effects of Valinomycin upon Pancreatic Islet Function	A. Carlos Boschero, Shoji Kawazu, Abdullah Sener, André Herchuelz, and Willy J. Malaisse	54
Ligand-Induced Conformational Changes of Rat Brain Hexokinase: Their Role in Determining the Substrate Specificity for Hexoses and Inhibitory Effectiveness of Hexose 6-Phosphates	John E. Wilson	79
Trehalose 6-Phosphate Synthase from <i>Dictyostelium discoideum</i> : Partial Purification and Characterization of the Enzyme from Young Sorocarps	Kathleen A. Killick	121
A Re-examination of the Reaction between Ox Liver Glutamate Dehydrogenase and 1-Fluoro-2,4-dinitrobenzene	Keith G. Gould and Paul C. Engel	284
Regulatory Characteristics of a Fructose Bisphosphatase from the Blue-Green Bacterium <i>Anacystis nidulans</i>	Ronald H. Bishop	295

NUMBER 2, SEPTEMBER 1979

COMMUNICATION

Peroxisomal Localization of Alanine: Glyoxylate Aminotransferase in Human Liver	Tomoo Noguchi and Yoshikazu Takada	645
---	------------------------------------	-----

INVITED PAPER

Aspects of Fraction 1 Protein Evolution	S. G. Wildman	598
---	---------------	-----

BIOLOGICAL OXIDATION AND BIOENERGETICS

Dinoflagellate Luciferases: Purification of Luciferases from <i>Gonyaulax polyedra</i> , <i>Pyrocystis lunula</i> , and <i>Pyrocystis fusiformis</i>	Bernard Lecuyer, Bernard Arrio, Chantal Fresneau, and Pierre Volfin	371
Intracellular Production of Superoxide Radical and of Hydrogen Peroxide by Redox Active Compounds	H. Moustafa Hassan and Irwin Fridovich	385
Inhibition of Bacterial Bioluminescence by Pargyline	John Makemson and J. Woodland Hastings	396
A Light-Dependent Oxygen Consumption Induced by Photosystem II of Isolated Chloroplasts	Richard T. Sayre and Peter H. Homann	525
Involvement of a Dithiol Protein in Mitochondrial Energy-Linked Functions and Its Relation to Coupling Factor B	D. L. Stiggall, Y. M. Galante, R. Kiehl, and Y. Hatefi	638

ENZYME MECHANISMS AND METABOLISM

Partial Purification and Some Properties of Rat Liver Sulfotransferase I, a Glucocorticoid Sulfotransferase Usually Restricted to Female Rats	Sanford S. Singer	340
Cow Brain Glutaminase: Partial Purification and Mechanism of Action	John F. Chiu and Elizabeth A. Boeker	493
The Nature of Anion Inhibition of Human Red Cell Carbonic Anhydrases	Thomas H. Maren and Elsa O. Couto	501
The Relation between Activity and Zinc and Chloride Binding of <i>Escherichia coli</i> Alkaline Phosphatase	Jan-Erik Norne, Helena Szajn, Hedvig Csopak, Pétur Reimarsson, and Björn Lindman	552
Purification and Partial Characterization of Alcohol Dehydrogenase from Wheat	Pat J. Langston, Gary E. Hart, and C. Nick Pace	611
Thiol S-Methyltransferase from Rat Liver	Richard A. Weisiger and William B. Jakoby	631

LIPIDS

Purification and Characterization of a Novel Cutinase from <i>Nasturtium (Tropaeolum majus)</i> Pollen	Indu B. Maiti, P. E. Kolattukudy, and Mashouf Shaykh	412
Phospholipid-Deacylating Enzymes of Rabbit Platelets	Reiji Kannagi and Kinya Koizumi	534
Malonyl-CoA Decarboxylase from <i>Mycobacterium Tuberculosis</i> and <i>Pseudomonas fluorescens</i>	Yu Sam Kim, P. E. Kolattukudy, and Angelika Boos	543

MEMBRANE STRUCTURE AND FUNCTION

Inhibition of Lipid-Linked Saccharide Synthesis: Comparison of Tunicamycin, Streptovirudin, and Antibiotic 24010	Alan D. Elbein, John Gafford, and M. S. Kang	311
Modification of the ($\text{Na}^+ + \text{K}^+$)-Dependent ATPase by Acetic Anhydride and Trinitrobenzene Sulfonate: Specific Changes in Enzymatic Properties	Joseph D. Robinson and Marcia S. Flashner	350
The Effects of Cell Proliferation on the Lipid Composition and Fluidity of Hepatocyte Plasma Membranes	Shirley Cheng and Daniel Levy	424
A Microfluorimetric Study of Membrane Dynamics during Development of Dystrophic Muscle <i>in Vitro</i>	Brian A. Herman and Salvador M. Fernandez	430
The Uptake of Cyclic AMP by Human Erythrocytes and Its Effect on Membrane Phosphorylation	Edwin L. Thomas, Lloyd E. King, Jr., and Martin Morrison	459
Studies on the Transport Mechanism of 5-Methyltetrahydrofolic Acid in Freshly Isolated Hepatocytes: Effect of Ethanol	Donald W. Horne, William T. Briggs, and Conrad Wagner	557
The Effect of Age and 1,25-Dihydroxyvitamin D_3 Treatment on the Intestinal Calcium-Binding Protein of Suckling Rats	Tzau-Huei Ueng, Ellis E. Golub, and Felix Bronner	624

BIOCHEMISTRY OF VIRUSES AND NUCLEIC ACIDS

Characterization of the Adenosine Triphosphatase of Avian Myeloblastosis Virus	R. P. Schneider and G. S. Beaudreau	475
--	-------------------------------------	-----

PHOTOSYNTHESIS AND PLANT BIOCHEMISTRY

Rapid Separation of the Chloroplast and Cytoplasmic Fractions from Intact Leaf Protoplasts	<i>S. P. Robinson and D. A. Walker</i>	319
Isolation of a <i>sn</i> -Glycerol 3-Phosphate: NAD Oxidoreductase from Spinach Leaves	<i>George T. Santora, Robert Gee, and N. E. Tolbert</i>	403
Flash-Yield Pattern for Photosynthetic Oxygen Evolution in <i>Chlorella</i> and Chloroplasts as a Function of Excitation Intensity	<i>Paul Jursinic</i>	484
NADP-Malic Enzyme from Maize Leaf: Regulatory Properties	<i>S. Asami, K. Inoue, and T. Akazawa</i>	581

POLYSACCHARIDES AND COMPLEX CARBOHYDRATES

Immunological Correlates between the Multiple Hemocyanin Subunits of <i>Limulus polyphemus</i> and <i>Tachypleus tridentatus</i>	<i>Jean Lamy, Josette Lamy, Jacques Weill, Joseph Bonaventura, Celia Bonaventura, and Michael Brenowitz</i>	324
Characterization of <i>Escherichia coli</i> B Glycogen Synthase Enzymatic Reactions and Products	<i>Eric Holmes and Jack Preiss</i>	436
<i>Escherichia coli</i> K-12 Glycogen Synthase: Ability to Use UDPglucose and ADP-glucose as Glucosyl Donors in the Absence of Added Primer	<i>J. Cattaneo, M. Magnan, and J. Bigliardi</i>	449

PROTEIN STRUCTURE AND FUNCTION

Ferredoxin from <i>Halobacterium</i> of the Dead Sea. Structural Properties Revealed by Fluorescence Techniques	<i>A. Gafni and M. M. Werber</i>	363
Tubulin and Microtubules from Bovine Kidney: Purification, Properties, and Characterization of Ligand Binding	<i>Larry D. Barnes and Glenda M. Roberson</i>	511
The Stabilization by a Coenzyme Analog of a Conformational Change Induced by Substrate in 6-Phosphogluconate Dehydrogenase	<i>Mario Rippa, Tiziana Bellini, Marco Signorini, and Franco Dallochio</i>	619

REGULATION OF METABOLISM AND OF ENZYME ACTION

Multiple Forms of Cyclic Nucleotide Phosphodiesterase from Bovine Carotid Artery Smooth Muscle	<i>Timothy J. Murtaugh and Ramesh C. Bhalla</i>	465
Two Major Regulatory Steps in Cholesterol Synthesis by Human Renal Cancer Cells	<i>Ricardo Gonzalez, John P. Carlson, and Mary E. Dempsey</i>	574
Regulation of the Activity of Mung Bean (<i>Phaseolus aureus</i>) Glutamine Synthetase by Amino Acids and Nucleotides	<i>S. Seethalakshmi and N. Appaji Rao</i>	588

NEUROCHEMISTRY

Detergent Solubilization of Mammalian Cardiac and Hepatic β -Adrenergic Receptors	<i>William L. Strauss, Geetha Ghai, Claire M. Fraser, and J. Craig Venter</i>	566
AUTHOR INDEX FOR VOLUME 196		648

The Subject Index for Volume 196 will appear in the December 1979 issue as part of a cumulative index for the year 1979.

